

HEALTH AND SAFETY PLAN

**BARITE HILL NEVADA GOLDFIELDS
McCORMICK, McCORMICK COUNTY, SOUTH CAROLINA
CERCLIS ID: SCD98759703**

Prepared for:

**U.S. Environmental Protection Agency
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April 24, 2009

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1.0 INTRODUCTION

1.1 Purpose

This Health and Safety Plan (HASP) has been prepared in accordance with Technical Direction Document (TDD) No. TNA-05-001-0042, which the U.S. Environmental Protection Agency (EPA) Region 4 assigned to Oneida Total Integrated Enterprises (OTIE-TN&A) Superfund Technical Assessment and Response Team (START). Under this TDD, EPA tasked START to provide a HASP for the removal action activities taking place at the Barite Hill Nevada Goldfields site (the site). OTIE-TN&A views the implementation of this HASP as a critical management element necessary to the success of the project. The HASP specifically describes the activities to be performed at the site and identifies procedures to be followed to minimize the potential for personnel exposure to physical hazards during the project. All (OTIE-TN&A) employees and subcontractors who perform field work during the project will be required to read this HASP and acknowledge receipt and understanding of this HASP by signing The Site Health and Safety Plan Compliance Agreement in Appendix A and submitting it to the Site Safety and Health Manager (SSHM) before performing any field activities.

The HASP will be periodically reviewed and modified throughout the duration of the project to ensure flexibility and adaptability as changes occur and new situations develop. The Project Manager (PM), the SSHM, and the Corporate Safety and Health Manager (CSHM) must approve modifications to the HASP.

1.2 Scope of the HASP

The HASP addresses all phases of field activities at the site, including:

- Purpose and Scope of the HASP
- Key Personnel and Personnel Responsibilities
- Site Description
- Hazard Identification and Analysis
- Training
- Personal Protective Equipment
- Medical Surveillance
- Air Monitoring
- Heat Stress
- SOPs and Controls
- Site Control Measures
- Personal Hygiene and Decon
- Equipment Decon
- Medical Services
- Emergency Equipment and First Aid
- Emergency Response and Contingency Plan
- Logs, Reports, and Recordkeeping
- Hazard Communication
- Alcohol and Drug Abuse Policy

Although safety and health is the responsibility of all personnel working at the site (including subcontractors), OTIE-TN&A has the primary responsibility of implementing the HASP. OTIE-

TN&A will review the subcontractor's HASP to see if there are any deficiencies or conflicts between the HASPs. Any deficiencies or conflicts should be resolved before starting the field activities. The SSHM has the authority to evaluate, correct, and take corrective actions when subcontract personnel do not follow the approved HASP.

1.3 Regulatory Authority

All on-site activities will be conducted in accordance with applicable federal Occupational Safety and Health Administration (OSHA) and other federal, state, local, and site regulations and will be consistent with OTIE-TN&A corporate commitment to personnel safety and health and the Corporate Safety and Health Program.

This HASP has been prepared to conform to the applicable requirements of OSHA 29 Code of Federal Regulations (CFR) 1926 Construction regulations and the EPA Region 4 Science and Ecosystem Support Division (SESD) *Field Branches Quality System and Technical Procedures* (FBQSTP).

2.0 KEY PERSONNEL AND PERSONNEL RESPONSIBILITIES

This section describes personnel responsibilities for implementation of the HASP. Clear lines of authority will be established for enforcing compliance with the HASP. Designated START personnel are responsible for field implementation of the HASP. This includes field supervision, enforcing safe work practices, ensuring proper use of PPE, and communicating modified safety requirements to site personnel.

To meet the OTIE-TN&A corporate goal of **ZERO ACCIDENTS** and **SAFETY EXCELLENCE** and to meet its project safety and health objectives, the Project Team has developed a line of reporting and has tasked individuals with the following safety and health responsibilities.

2.1 Project Manager/Site Safety and Health Manager (SSHM)

As the PM, START Mr. Russell Henderson will have primary responsibility for technical, financial, and scheduling matters. As such, Mr. Henderson will be the primary point of contact with the EPA On-Scene Coordinator (OSC). His duties will include:

- Reviewing and approving the project plans, related preplanning documents, and reports;
- Assigning duties to the project staff and orienting the staff to the needs and requirements of the project;
- Supervising the performance of the project team;
- Evaluating training needs for the project staff;
- Providing budget and schedule control;
- Reviewing subcontractor work and approving subcontract invoices;
- Establishing a project record system;
- Ensuring that major project deliverables are reviewed for technical accuracy and completeness before their release;
- Ensuring that the requirements of the Site Sampling Plan (SSP) are satisfied; and
- Regularly communicating project status and progress to the EPA OSC.

In addition, Mr. Henderson will conduct initial site-specific training and ensure that all employees performing intrusive work have their 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training certificates as well as their annual refresher course certificates and medical surveillance clearance forms. Mr. Henderson has the authority to ensure site compliance with specified health requirements including federal, state, and OSHA regulations and to enforce all aspects of the HASP including, but not limited to:

- Activity hazard analyses
- Use of PPE
- Decontamination procedures
- Site control

Mr. Henderson, as the SSHM, has authority to stop work if unacceptable health conditions exist and take necessary action to reestablish and maintain safe working conditions. The SSHM will consult with and coordinate any modifications to the HASP with the CSHM. The SSHM will serve as a member of the Contractor's quality control staff on matters relating to health and safety. The SSHM, in conjunction with the CSHM, will conduct accident investigations and prepare accident reports. The SSHM will review results of daily quality control inspections, complete exposure data, and document health and safety findings in the daily reports. In coordination with site management and the CSHM, the SSHM will recommend corrective actions for identified deficiencies and oversee the corrective actions. The SSHM will provide continued support for upgrading/downgrading the level of PPE. The SSHM will be responsible for evaluating air monitoring data and recommending changes to engineering controls, work practices, and PPE.

A current Cardiopulmonary Resuscitation (CPR)/First-Aid certification is required for the SSHM. Evidence of current training should be readily available.

2.2 Quality Control (QC) Site Manager/Site Safety and Health Officer (SSHO)

The QC Site Manager designated for this project is Mr. Jorge Sanchez. His responsibilities for this project include:

- Serving as the official contact for QC matters for the project
- Stopping work if something is identified that has significant quality impacts
- Actively identifying and responding to Quality Assurance (QA)/QC needs, resolving problems, and answering requests for guidance or assistance from the PM or other OTIE-TN&A staff.
- Actively tracking the progress of quality tasks in this plan and consulting regularly with the PM
- Preparing and submitting QA/QC reports to the PM
- Verifying that appropriate corrective actions are taken for all non-conformances
- Verifying that appropriate methods are specified for obtaining data of known quality and integrity
- Providing project-specific training in QA/QC matters to OTIE-TN&A personnel, as needed, identified, or requested by the PM
- Scheduling and performing an appropriate QA verification activity for each investigation activity to ensure compliance with requirements and procedures
- Ensuring that necessary corrective actions are taken for incidents of nonconformance
- Assisting in the implementation of corrective actions to prevent recurrence of any problems.

As the SSHO, Mr. Sanchez is also responsible for overseeing field activities to ensure adherence to project scope, quality requirements, and Safety First to ensure strict compliance with the site-specific HASP and the OTIE-TN&A Corporate HASP.

2.3 Employees

As required: Obey safety and health work practices issued by law and by the Project Team. Read, understand, and sign the HASP (Signature forms are located in Appendix A of this HASP). Wear PPE as directed by this HASP. Use safety equipment as directed by this HASP. Inform the SSHO of any prescription medication taken during the project. Report recognized unsafe conditions and actions to the SSHO. Report any accidents, exposures, near misses, or property damage immediately.

2.4 Visitors

Visitors must follow the direction of the SSHO. If visitors are required to enter the work area, they are to read, understand, and sign the Site Health and Safety Plan Compliance Agreement found in Appendix A. Visitors do not enter the work area unless documentation of the appropriate OSHA-required training has been obtained and submitted to the SSHO, and they have been authorized to enter the work area. Visitors must use designated PPE, as appropriate. Visitors must use safety equipment as directed by this HASP. Visitors must report recognized unsafe conditions and actions to the SSHO. Visitors must report any accidents, exposures, near misses, or property damage immediately.

2.5 Work Stoppage Authority

The SSHM, SSHO, and/or PM will have the authority to make on-the-spot corrections dealing with deviations from the HASP. If it is felt that the infraction cannot be remedied immediately and that continuance of the job could result in significant violations, the SSHM, SSHO, and/or PM will have the authority to order a cessation of the activity until the problem can be remedied.

3.0 SITE DESCRIPTION

3.1 Physical Location and Site Characteristics

The site is an abandoned pit mine located approximately 3 miles south of McCormick, McCormick County, South Carolina between US Highway 378 and US Highway 221 on the northern side of Road 30. The site is located in a relatively remote area; there are no buildings, homes, or commercial buildings within 0.5 miles of the site boundary (see Figure 1).

The site is located along a topographic high ridge area forming the headwaters of an unnamed tributary to Hawes Creek. The topography of the area consists of rolling hills with ridgelines at an elevation of about 500 feet above mean sea level (amsl). Within the site, the ridgeline comprising the site has a high point of about 510 feet amsl and an average elevation of approximately 480 feet amsl.

The permitted mine site totals 795.2 acres. Of this total, 659.7 acres are designated as a buffer area (area not disturbed beyond the pre-mine natural state). Therefore, the maximum disturbance area is 135.5 acres.

The site operated as a surface mine with cyanide heap leaching for gold recovery from 1991 until 1995 when mine reclamation was initiated. The reclamation of the site was being addressed by Nevada Goldfields from 1995 until 1999 when the company filed for bankruptcy, subsequently suspending site reclamation activities and leaving portions of the mine reclamation and closure activities uncompleted.

On July 7, 1999, Nevada Goldfields gave the facility's keys to the South Carolina Department of Health and Environmental Control (SCDHEC) and abandoned the site.

The facility used a cyanide solution in a heap leach process to extract gold from ore. There are seven processing ponds on site containing an unknown amount of free-liquids (see Attachment A, Figure 2). Three large, multi-acre, waste rock piles contaminated with cyanide remain on site. Each waste rock pile has the potential for producing acid. Stormwater run on and runoff are not controlled at the site. The Main Pit from the mining operations remains.

When the mine was abandoned, pumping ceased and the Main Pit flooded. This introduction of water was the initial step in acid rock drainage. The waste rock stockpiles surrounding the eastern and southeastern portions of the Main Pit continue to be a source of acid rock drainage. The pit contains approximately 100 million gallons of water with a pH of between 2 and 2.2 and a high dissolved metal content. Seeps from the Main Pit, containing acidic water with high dissolved metal content, are being released to the northern unnamed tributaries of Hawes Creek, which borders the pit. The metal-laden acid water present in the pit poses a significant environmental hazard if released. Stabilizing and reclaiming the acid pit is one of the most important issues of immediate concern.

4.0 HAZARD IDENTIFICATION AND ANALYSIS

4.1 Summary of Site Field Activities

The following are the field activities necessary at the site:

- Site Mobilization – OTIE-TN&A will mobilize resources (personnel, equipment, and materials) to successfully perform the work tasks
- Pit Lake and Seep Sampling– OTIE-TN&A personnel will perform Pit Lake sampling using a small boat. Samples will be collected at various locations and depths within the Lake. In addition, the runoff that seeps out of the cracks and crevices in the mountain will be sampled.
- Air Monitoring – OTIE-TN&A personnel will monitor the air for sulfuric acid, sulfur dioxide, and total acids using detector tubes during Pit Lake sampling. In addition, hydrogen cyanide will be monitored using a handheld direct reading unit.
- Site Demobilization – Site personnel, equipment, and temporary facilities will be demobilized from the site. A general cleanup of the area will occur prior to completion.

4.2 Summary of Activity Hazard Analysis (General)

It is recognized that certain work activities are inherently more hazardous than others. For these operations, a detailed activity hazard analysis (AHA) will be conducted for each associated work task that specifies corrective actions to be taken to control the hazard. AHAs will be produced, reviewed, and modified, as necessary, to address new work activities and changing site conditions as the work progresses. Work will not begin until the AHA for a given work activity has been accepted by the client and discussed with all affected project personnel. The hazardous work activities for which AHAs have been developed for the Barite Hill Nevada Goldfields removal action activities are listed in Table 1 below. AHAs are included as Appendix B.

**Table 1
Activity Hazard Analysis Summary**

AHA Number	Description
01	Mobilization
02	Pit Lake and Seep Sampling
03	Demobilization

Each job step in the AHA will have an assigned Risk Assessment Code (RAC) as defined on the AHA RAC Matrix. The levels of precautions or controls will be upgraded or downgraded as appropriate, based on air monitoring data and site conditions. These changes will be initiated by the PM and approved by the SSHO.

The levels of precautions or controls will be upgraded or downgraded as appropriate, based on air monitoring data and site conditions. These changes will be initiated by the SSHO and approved by the PM and the SSHM.

NOTE: All of these AHAs are subject to review and revision once subcontractors are hired to perform the various tasks as they will update the safety procedures specific to the tasks and equipment at the site. These changes will be initiated by the SSHO, reviewed by and approved by the PM and the SSHM.

Physical Hazards

Potential physical hazards that may be encountered during work at the site include the following:

Inclement Weather and Electrical Storms

Monitor local weather through available media or a weather radio.

During daily safety meetings address inclement weather/earthquake procedures:

For Lightning and/or Thunder proceed with the following:

1. Shut down equipment;
2. Proceed to support zone; and
3. Await further instruction from PM/SSHM.

NOTE: A 30-minute STAND DOWN period is required after encountering lightning or thunder in order to allow the storm to pass. Verification from the National Weather Service for an ALL CLEAR is also advised prior to re-commencing work.

Noise Hazards

Noise is defined as unwanted sound in the form of vibration conducted through liquids, solids, or gases. The effects of noise on humans include psychological effects (interference with communication by speech, job performance, and safety) and physiological damage such as hearing loss. Of these, the most debilitating is hearing loss. The permissible exposure levels (PELs) for noise are listed below.

Table 2: Permissible Exposure Limits for Noise	
Duration (per day)	Measurement (dBA)
8 hours	90
6 hours	92
4 hours	95
3 hours	97
2 hours	100
1.5 hours	102
1 hours	105
30 minutes	110
15 minutes	115
dBA = decibels on an A-rated scale	

The factors that affect the degree and extent of hearing loss are intensity or loudness of the noise, type of noise, period of exposure each day, total work duration, and distance from the source. Noise exposure will be in compliance with all applicable state and federal regulations.

Where 8-hour time-weighted averages are 85-dBA or greater, a hearing conservation program is required. This includes an initial audiogram to establish a baseline on the employee's hearing

ability, followed by an annual audiogram to measure hearing. The conservation program should also allow employees access to their audiogram records.

OSHA regulations stipulate that when employees are subject to sound that exceeds the PEL, feasible administrative or engineering controls shall be used. If controls fail to reduce sound exposure to within the PEL, PPE must be provided and used to decrease sound levels to within the PEL. Use of PPE (e.g., earplugs or muffs) should be implemented immediately upon discovery of sound levels above the action level pending evaluation of suitable engineering controls. Exposure to impact noise should not exceed the 140-dBA peak sound level.

The potential for loud noise at this site is associated with welding, cutting, and other construction activities. However, prolonged exposure to noise exceeding the PEL is unlikely. However, if the noise monitoring is necessary, as determined by SSHO, then the monitoring will be conducted using a dosimeter with data logging capabilities.

NOTE: Unacceptable levels of noise can be expected when working in close proximity to heavy machinery. Hearing protection is required when OPERATING HEAVY EQUIPMENT AND WORKING WITHIN 30 FEET OF THIS EQUIPMENT.

As a rule of thumb, the dB level is above 85 when you have to speak loudly to a person at an arms length or less away. Noise monitoring at the site is not planned for activities to be performed.

Hearing Protection Devices

Expandable foam earplugs or earmuffs will be worn whenever personnel are working and hearing protection is required. The minimum noise reduction rating (NRR) for earplugs or earmuffs is 25dBA.

Hand signals will be used when noisy conditions exist and/or when hearing protection devices are used. The hand signals to be used will be discussed and agreed upon by site personnel before working with hearing protection.

Material Lifting Hazards

Many different types of objects may be handled manually during site operations. Care should be taken when lifting and handling heavy or bulky items because they are the cause of many back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

The size, shape, and weight of the object to be lifted must first be considered. No individual employee is permitted to lift any object that weighs over 50 pounds. Multiple employees or the use of mechanical lifting devices are required for objects over the 50-pound limit.

The anticipated path to be taken by the lifter should be inspected for the presence of slip, trip, and fall hazards.

The feet shall be placed far enough apart for good balance and stability (typically shoulder width). THE FOOTING SHALL BE SOLID.

The worker shall get as close to the load as possible. The legs shall be bent at the knees.

The back shall be kept as straight as possible and abdominal muscles should be tightened.

To lift the object, the legs are straightened from their bending position.

A worker shall never carry a load that cannot be seen over or around.

When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered.

When two or more workers are required to handle the same object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, shall face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines shall be followed to avoid injury to the hands and fingers:

A firm grip on the object is essential; leather gloves shall be used if necessary.

The hands and object shall be free of oil, grease, and water that might prevent a firm grip and the fingers shall be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.

The item shall be inspected for metal slivers, jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

Biological Hazards

The following paragraphs describe potential biological hazards at the site.

Hazardous Flora

The incidence of human contact with poisonous/thorny plants is high when working in forested or vegetated areas; therefore, bare skin will be covered (i.e., long pants and long-sleeved shirt, boots, leather or cotton gloves, safety glasses, and head protection) as much as practical. Personnel will avoid entering any area in the direct path of known poisonous flora (e.g., poison ivy or poison sumac). Instead a secondary route will be selected. Care must also be taken when walking in areas where uneven terrain or vines may present a tripping hazard. Rashes or other injuries will be reported to the SSHO as soon as they occur or are recognized to have occurred.

Refer to Appendix G for further details on Poison Ivy and Poison Sumac.

Hazardous Fauna

Mosquitoes, flies, and gnats pose a nuisance and physical hazard to field personnel. They can cause accidents when they distract workers and can also pose a health threat through the transmission of microorganisms. Perfumes and scented deodorants can attract these insects and will not be worn by field personnel while on the site. Insects are more attracted to dark colored clothing; therefore, light colored clothing is preferred. Because of the possibility of sample interference, insect repellent will not be used. However, the possibility of insect-borne diseases and individual susceptibility to allergic reactions caused by insect bites necessitates the use of insect repellants. The use of insect repellants [especially those containing N,N-diethyl-meta-toluamide (DEET)] will be noted in the field logbooks. Reasonable care should be taken to control sample contamination.

There is also a potential to come in contact with other dangerous insects at the site. These include chiggers, bees, wasps, hornets, mites, fleas, spiders, and ticks. All personnel will perform "checks" on themselves periodically and at the end of the work shift. When walking or working in forested or vegetated areas, personnel will be alert to the presence of and avoid encountering elaborate spider webs among trees and bushes. All insect bites must be reported to the SSHO. Personnel must always be aware of individual reactions to bee stings or insect bites.

Should an individual start to have shortness of breath and become covered in hives, the person may be having an intense allergic reaction. Medical attention must be sought immediately.

If a tick does become attached, it must be removed immediately upon discovery. Tweezers must be used to ensure the entire head and body of the tick is removed. If the head cannot be removed, medical attention must be sought at the end of the day.

West Nile Virus – This virus has been identified on the Eastern Coast of the United States since 1999. In 2001 it was reported in Florida. West Nile encephalitis is an infection of the brain caused by the West Nile Virus, a flavivirus commonly found in Africa, West Asia, and the Middle East. The West Nile Virus is transmitted by mosquitoes and has been commonly found among humans, birds, and other vertebrates in the aforementioned locals. Until 1999, however, the West Nile Virus had not been documented in the Western Hemisphere. In 1999, 62 cases of severe disease, including seven deaths, occurred in the New York Metropolitan area.

Basic Transmission Cycle

The virus is spread through the bites of infected mosquitoes. Mosquitoes become infected when they feed on infected birds, which may circulate the virus in their blood for a few days. Infected mosquitoes can then transmit the West Nile Virus to humans and animals while biting to take their blood. The virus is located in the mosquito's salivary glands. During blood feeding, the virus may be injected into the animal or human, where it may multiply, possibly causing illness. The West Nile Virus is NOT transmitted from person to person.

Symptoms of West Nile Encephalitis

All residents of areas where virus activity has been identified are at risk of getting West Nile encephalitis; persons older than 50 years have the highest risk of severe disease.

Most infections are mild, and symptoms include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands. More severe infection may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, rarely, death. The incubation period in humans (i.e., time from infection to onset of disease symptoms) for West Nile encephalitis is usually 3 to 15 days.

Risk Minimization

The following are precautions to minimize mosquito bites and potential exposure to the virus:

- Mosquito activity increases in the dawn, dusk, and early evening hours.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35 percent DEET. DEET in high concentrations (greater than 35 %) provides no additional protection.
- Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands of children.
- Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.

NOTE: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

Explosion and Fire

Electrical equipment malfunction (pumps, generators, etc.) and fuel storage containers present potential explosion or fire hazards and will be monitored closely as it pertains to site activity.

Potential Chemical Hazards

Potential chemical hazards in and around the Pit Lake include low pH, heavy metals, iron sulfate, hydrogen cyanide, sulfuric acid, and sulfur dioxide.

Potential heavy metals include: arsenic, beryllium, boron, cadmium, chromium, chromium VI, cobalt, iron, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium.

The petroleum fuels and lubricants used in vehicles at the site are also potential chemical hazards. No other potential chemical hazards are known to exist at the project site.

Appendix F contains Chemical data Sheet information on Potential Chemical Contaminants.

A spill kit consisting of a spill drum, shovel, broom, and absorbent pads will be located at any hazardous material storage area. Any spills will be immediately reported to the SSHO and PM. The PM will ensure that the appropriate facility and/or local authorities are notified in the case of a spill.

Appendix F also contains Material Safety Data Sheets on the miscellaneous products used during field activities.

5.0 TRAINING

To meet the OTIE-TN&A corporate goal of **ZERO ACCIDENTS** and **SAFETY EXCELLENCE** and to meet its project safety and health objectives, OTIE-TN&A requires that all employees involved with construction projects, which involve the operation of heavy equipment, and the management of hazardous materials have a thorough knowledge of potential occupational hazards. In addition, all employees are specifically trained in proper work procedures and how to eliminate or mitigate potential exposure to safety and health hazards. OTIE-TN&A's OSHA 300 Logs for 2008 as well as the Environmental Health and Safety Performance Record for the past 5 years can be found in Appendix C.

OTIE-TN&A personnel are required to attend frequent, formal training sessions during their employment with the company. The following sections present the corporate-mandated training that is required of all personnel and subcontractors working on a construction/remediation project.

5.1 Basic Safety Training

Training subjects include proper work procedures, hazard communication, hearing conservation, PPE, respiratory protection, and first aid/CPR for designated individuals. Heavy equipment operators are also given training on the equipment they are to be operating on the project. Personnel training certificates are located in Appendix D.

5.2 Refresher Training

Regular refresher is provided to employees annually for hazardous waste site projects. Refresher training on chemical hazard communication, respiratory protection, and other safety topics is provided.

5.3 Supervisory Training

All supervisory personnel will have attended site safety supervision orientation training. The SSHO (or designee) will have trenching and excavating safety training.

5.4 Site-Specific Orientation

All project personnel will be required to attend a site-specific training session prior to commencement of work at the job site. This training, known as the Site-Specific Orientation, identifies specific safety and health concerns of the project. Known and suspected chemical and physical hazards will be reviewed. Operational, compliance, security, and contingency controls will be emphasized. Only personnel who have been documented as attending this training will be allowed to participate in the project. The SSHO or SSHM will conduct this training. All elements of this HASP will be addressed.

5.5 Daily Safety Meetings

Daily safety meetings will be held by the SSHO. These meetings will provide information on work tasks to be performed, review any accidents/incidents or violations that occurred the previous day, and are designed to comply with the weekly refresher training session. These

meetings will be documented on the daily safety tailgate meeting form. This form is found in Appendix E.

A meeting will be held prior to an operational change affecting on-site fieldwork to explain safety and health procedures.

5.6 Hazard Communication

Site-specific hazard communication will be provided on the site by the SSHO. Material safety data sheets (MSDS) or chemical substance fact sheets will be maintained on the site for all hazardous chemicals to be used on site and for any hazardous materials purchased for use at the site. In addition to MSDS, the Hazardous Material Inventory Form will be used to inventory hazardous materials to be introduced to the site, with estimated quantities, will be made available to all employees. Hazardous Material Inventory Form and MSDS are located in Appendix F.

5.7 Subcontractor Training

All subcontractors entering the project area will certify that their employees have successfully completed the appropriate training before undertaking site work. Such certification must include documented evidence that each subcontractor employee has completed site safety orientation training conducted by the SSHO or the SSHM. The Site Health and Safety Plan Compliance Agreement (Appendix A) must be signed by the subcontractor's employees prior to commencement of work.

This certification record will be retained in the on-site project office along with other documents. Additional job-specific, on-site training and safety briefings, as discussed in other sections of this HASP, will be performed and documented by OTIE-TN&A.

5.8 Visitor's Briefing

The SSHO will brief all site visitors who will be in the work area only for short periods of time. The visitor's briefing will include the hazards associated with the site, emergency procedures, and the use of PPE.

6.0 PERSONAL PROTECTIVE EQUIPMENT

Selection of appropriate PPE will be based on the safety and health hazards identified at the job site. The required safety equipment and clothing must be available on the site before work is to begin. At a minimum, PPE will consist of standard work clothes (shirts with long sleeves and pants), standard eye protection, steel toe boots, gloves, and hard hats. Work conducted in the immediate vicinity of operating heavy equipment (within 30 feet) will require hearing protection. Prior to transporting or handling hazardous material the SSHO and employees will review the MSDS. The SSHO and/or the SSHM will determine PPE required for employees transporting or using hazardous material.

General

Selection of appropriate PPE will be based on the contaminant type(s), concentration(s), and routes of exposure. All potential exposures will be considered in the selection of appropriate protection levels to provide adequate worker protection. The major objectives of the PPE programs are to select appropriate and approved PPE for the hazards; to ensure that the devices are introduced to users with a clear and complete explanation of their protection value and method of proper use; and to assign supervisory responsibility ensuring proper use and continued maintenance of the devices. All workers using respirators will have a yearly qualitative fit test and will meet all requirements for use under OSHA 29 CFR 1910.134.

Work Mission Duration: April 2009 through September 2009

Levels of Protection and Equipment Requirements

Appropriate PPE will be worn according to predetermined material exposure levels. The required safety equipment and clothing must be available onsite before work is to begin.

At a minimum, Level D and Modified Level D PPE will consist of the following:

- Steel toe and shank boots
- Neoprene over-boots
- Chemical-resistant gloves (Nitrile gauntlet-style; 22-mil thickness)
- American National Standards Institute (ANSI)-approved safety glasses with side shields and a face-shield for splash protection as necessary; and,
- ANSI-approved hard hats

Work around heavy equipment will require the additional PPE:

- ANSI Class II reflective safety vest; and,
- Hearing protection consisting of ear muffs and/or ear plugs with NRR of 25 or greater, as necessary.

The following equipment shall be maintained throughout the duration of site work. All items shall be available to site personnel:

- Chemical resistant neoprene over-boot
- Steel toe/shank safety boot
- ANSI-approved hard hats
- Tyvek® coveralls (or equivalent)

- ANSI-approved safety glasses with side shields/Chemical splash goggles/Face shield
- Nitrile gloves (gauntlet-style; 22-mil thickness)
- Earplugs and/or earmuffs, as necessary (as described above)

The following PPE levels have been set for site activities:

Level D and Modified Level D PPE

Site Mobilization – Level D PPE

Pit Lake Sampling – Modified Level D

Personnel will be prepared to upgrade to Level C PPE by using a HMAPR equipped with acid gas cartridges

Air Monitoring Activities – Level D

Site Demobilization – Level D PPE

The SSHO will be responsible for determining the need for the various levels of PPE. When personnel are working in protective coveralls, extreme care will be maintained to ensure that personnel do not become susceptible to heat-related stresses. The SSHO will be responsible for monitoring for heat-related stress.

Work at this level is anticipated at the site in designated areas as described in the Work Plan. Exposure monitoring and air monitoring detailed in this HASP indicates the steps necessary to evaluate the need to exit the area. No upgrade of PPE will be required during sampling activities. In the event that air monitoring indicates action levels have been exceeded, the work will be immediately stopped by the SSHO and personnel will exit the area.

7.0 MEDICAL SURVEILLANCE

Purpose

The purpose of a medical surveillance program is to provide uniform medical care, ensure the selection of employees physically able to safely perform the work assigned, monitor employee health on a regular basis, and provide medical care for occupational injury or illness. This program applies to all OTIE-TN&A employees and subcontractors. Specific requirements of the program are described below.

Medical Evaluation

All personnel involved in on-site operations must participate in an ongoing medical surveillance program meeting the requirements of OSHA 29 CFR 1910.95, 1910.120 and 1910.134. The first examination will be conducted before personnel begin working at the site. The medical surveillance protocols and examination results will be overseen by a licensed physician certified in Occupational Medicine by the American Board of Preventive Medicine or who, because of necessary training and experience, is Board-eligible. The baseline medical examination for the project will include the following:

- Complete medical and occupational work history,
- General physical examination,
- Complete blood count,
- Electrocardiogram,
- Urine analysis with microscopic examination,
- Pulmonary function test,
- Chest X-ray,
- Audiogram,
- Visual acuity measurement,
- Ability to wear respirator, and
- Stress test for employees over 40 years of age.

This requirement will be strictly enforced for OTIE-TN&A personnel, as well as all subcontractor personnel. However, personnel currently participating in a medical surveillance program (with yearly medical examinations), which meets the requirements of 29 CFR 1910.120 relative to specific site conditions, will not be required to have additional medical surveillance. Based on the results of this examination and other pertinent information, a medical certification as to the fitness for employment on this project, or any restrictions on that employee's ability to utilize PPE will be maintained at the site. However, specific medical examination results will be maintained in strict confidence and will not be subject to disclosure without the explicit written approval of the employee. Beyond the general medical surveillance requirements listed above, no other chemical-specific requirements are applicable to OTIE-TN&A employees based on historical data from previous projects and reasonable expectations of potential exposures at this site. These requirements will be revised accordingly if data reveal that chemical-specific action levels are being exceeded.

Annual Examination

Each OTIE-TN&A employee who may be potentially exposed to hazardous chemicals, or who must wear a respirator for more than 30 days per year, and is exposed to occupational noise will receive an annual examination consistent with the baseline examination aforementioned.

Employee Notification of Medical Examination Results

The medical consultant at Health Resources (a national medical surveillance program) will review the results of the medical evaluation. If the examination uncovers a serious health problem, the employee is contacted and also notified in writing by the nurse at Health Resources. Health Resources also recommends that the employee see his/her family doctor. If the condition is more serious Health Resources will notify OTIE-TN&A's human resources department. If the health condition is pertaining to the job, Health Resources will conduct follow-up monitoring.

Lost-Time Injuries/Illnesses

The occupational physician will evaluate any employee who loses time due to a workplace injury or illness during the period of the contract. The physician will complete appropriate forms and provide the supervisor with a copy, clearing the employee for return to work. Reports of all such accidents will be maintained at the site.

Records

Accurate medical records will be maintained by the occupational physician in accordance with 29 CFR 1910.120. Employees will be permitted access to all medical records following the procedures outlined in 29 CFR 1910.20 and OTIE-TN&A's Health and Safety Procedures.

8.0 AIR MONITORING

Air Monitoring

Hydrogen Cyanide

Hydrogen cyanide (HCN) will be monitored using a handheld instrument with an electrochemical sensor specific to HCN. The action level set for exposure is the American Conference of Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 5 mg/m³.

Sulfuric Acid and Total Acids

Sulfuric acid and total acids will be monitored using detector tubes (e.g.; Drager). The action level set for exposure is the ACGIH TLV of 0.2 mg/m³. This action level will also be used to monitor total acids.

Sulfur Dioxide

Sulfur dioxide will be monitored using detector tubes (e.g.; Drager). The action level set for exposure is the ACGIH TLV of 5.2 mg/m³.

9.0 HEAT STRESS

Heat Stress Monitoring Plan

When the body is unable to cool itself by sweating, several heat-induced illnesses such as heat stress or heat exhaustion and the more severe heat stroke can occur, and can result in death.

Factors Leading to Heat Stress

High temperature and humidity;	Physical exertion;	Inadequate tolerance for hot workplaces.
Direct sun or heat;	Poor physical condition;	
Limited air movement;	Some medicines; and	

When the body temperature rises, the body seeks to dissipate the excess heat. The major disorders due to heat stress are heat cramps, heat exhaustion, and heat stroke.

The symptoms and recommended prevention for each are listed below:

Symptoms of Heat Cramps

- Painful spasms that may occur in the muscles of workers who have perspired profusely in the heat.
- Treatment consists of stopping work and the worker supplied with fluids.

Symptoms of Heat Exhaustion

- Headaches, dizziness, lightheadedness or fainting.
- Weakness and moist skin.
- Mood changes such as irritability or confusion.
- Upset stomach or vomiting.
- Treatment consists of rest in a cool place and replacement of body water lost by perspiration. Mild cases may recover spontaneously with this treatment. Severe cases may require care for several days. There are no permanent effects.

Symptoms of Heat Stroke

- The skin is very dry and hot with a red or bluish appearance.
- Unconsciousness, mental confusion, or convulsions may occur.
- Without quick and adequate treatment, the result can be permanent brain damage or death.
- Treatment consists of providing medical assistance as quickly as possible. The person should be moved to a cool place. Body heat should be reduced by soaking the person's clothes with water.

Concerns with heat stress for personnel not wearing semi-permeable or impermeable PPE generally can be expected whenever temperatures exceed 80° F. Therefore, the following requirements should be initiated and adhered to when ambient temperature exceeds 80° F:

- Acclimate the body to the working environment.

- Drink cool water to replace body fluids lost during sweating. Site personnel taking prescribed heart and/or high blood pressure medication may require electrolyte replenishing liquids to combat heat stress. It is recommended that each individual taking prescribed heart and/or high blood pressure medication consult his personal physician prior to consuming these drinks.
- Take rest breaks as frequently as necessary to prevent personal distress and development of symptoms.
- Count pulse rate during a 30-second period as early as possible in the rest break. If heart rate exceeds 110 beats per minute at the beginning of the rest break, shorten the next work cycle by one-third and keep the rest break the same. If the heart rate still exceeds 110 beats per minute at the next rest break, shorten the following work cycle by one-third.

Preventing Heat Stress

- Know signs/symptoms of heat-related illnesses; monitor yourself and coworkers.
- Block out direct sun or other heat sources.
- Use cooling fans/air-conditioning; rest regularly.
- Drink lots of water; about 1 cup every 15 minutes.
- Wear lightweight, light colored, loose-fitting clothes.
- Avoid alcohol, caffeinated drinks, or heavy meals.

What to Do for Heat-Related Illness

- Call 911 (or local emergency number) at once.

While waiting for help to arrive:

- Move the worker to a cool, shaded area.
- Loosen or remove heavy clothing.
- Provide cool drinking water.
- Fan and mist the person with water.

In situations where heat stress may impact worker safety and health, worker acclimatization and workloads shall be assessed and work/rest regimens shall be established.

Workers in Permeable Clothing

OTIE-TN&A proposes an alternative method for monitoring heat stress using the Kestrel 4000 Pocket Weather Tracker manufactured by Nielsen Kellerman. This device measures the following heat stress parameters: temperature, wind chill, heat index and wet bulb temperature. We propose to use the Heat Index as a primary indicator of exposure to environmental heat conditions. The Heat Index is discussed in detail at the end of this section.

Heat Stress Monitoring

Concerns with heat stress for personnel not wearing semi-permeable or impermeable PPE generally can be expected whenever temperatures exceed 80° F.

Ambient Temperatures >80° F

Initiate the following steps:

- Acclimate the body to the working environment.
- Drink cool water to replace body fluids lost during sweating. Site personnel taking prescribed heart and/or high blood pressure medication may require electrolyte replenishing liquids to combat heat stress. It is recommended that each individual taking prescribed heart and/or high blood pressure medication consult his personal physician prior to consuming these drinks.
- Take rest breaks as frequently as necessary to prevent personal distress and development of symptoms.
- Personal monitoring can be done by checking the heart rate; recovery heart rate; or the ear/oral temperature. The recovery heart rate can be checked by comparing the pulse rate taken at 30 seconds (P_1) with the pulse rate taken at 2.5 minutes (P_3) after the rest break starts. The two pulse rates can be interpreted using the Heart Rate Criteria below:

HEART RATE RECOVERY CRITERIA

Heart rate recovery pattern

Satisfactory recovery

High recovery (Conditions may require further study)

No recovery (May indicate too much stress)

P_3	Difference between P_1 and P_3
<90	--
90	10
90	<10

- Ear or oral temperature can be checked with a clinical thermometer after work but before the employee drinks water. If the ear-insertable or oral temperature taken under the tongue exceeds 37.6°C, shorten the next work cycle by one third.

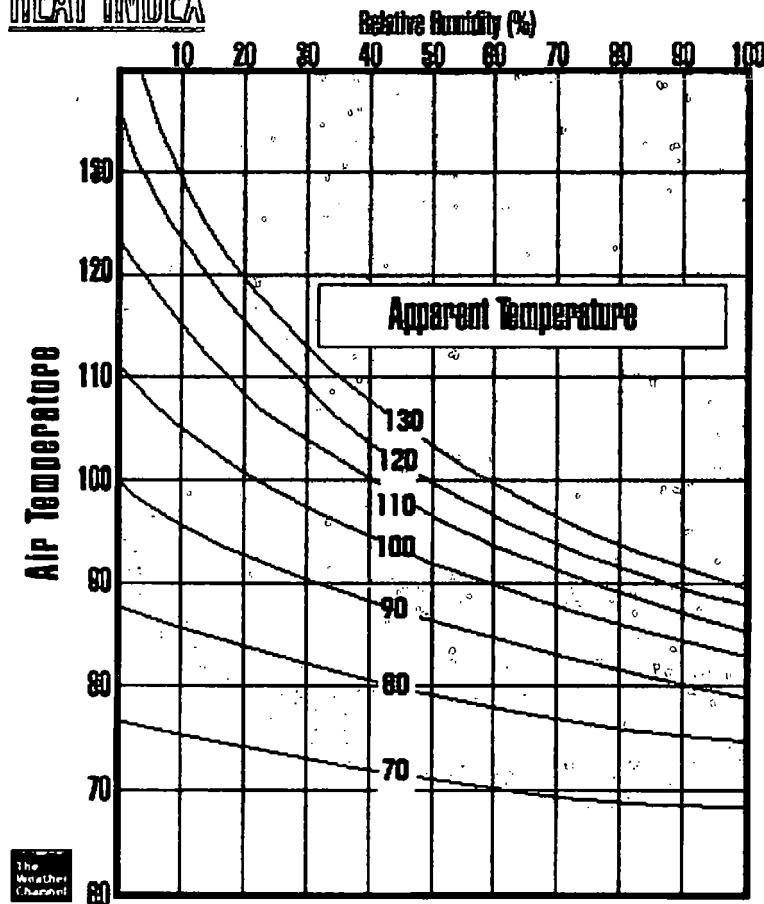
Use the Heat Index Chart and take necessary precautions.

The Heat Index is a function of temperature and relative humidity. The combination of the two result in an apparent temperature which gives an idea of what it would feel like under normal-to-low humidity conditions.

The Heat Index also applies to shady, light wind conditions, so it feels even hotter than the heat index if a person is in direct sun. In the midst of a hot, dry, wind a person would also feel hotter than the Heat Index value due to the wind effects.

Excessive and dangerous heat indices occur mostly during the summer months with the abundance of moisture and increased heat.

HEAT INDEX



Apparent Temperature Readings

- | | |
|-----------------|---|
| Caution | 85 to 94 deg F – physical activity may cause fatigue |
| Extreme Caution | 95 to 105 deg F – possible heat cramps and/or heat exhaustion with prolonged exposure |
| Danger | Above 105 deg F -- possible heat stroke with prolonged exposure; heat exhaustion and heat cramps likely |

Cold Stress

Due to the temperate climate in South Carolina during the time of this project, cold stress is not anticipated to be a hazard of concern for this project. However, should circumstances warrant, cold stress information will be added to this HASP.

10.0 STANDARD OPERATING PROCEDURES AND CONTROLS

All site personnel shall follow the following general operating procedures. These precautionary measures are designed to reduce the risks of inadvertent or accidental chemical exposure or injury during on-site operations.

Personal Precautions

Be familiar with standard operating procedures and adhere to all instructions and requirements in the HASP.

Medicine and alcohol can exacerbate the effects from exposure to toxic chemicals. While field operations are in effect, alcoholic beverage intake should be minimized or avoided during off-work hours. Prescribed drugs should not be taken by personnel on-site operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Do not work when ill.

Operational Requirements

General Requirements for All Levels - All work shall be in Level D unless otherwise noted.

The SSHO shall conduct daily safety and health inspections to determine if operations are being performed in accordance with this HASP, OSHA, and any other pertinent regulations and contract requirements.

All personnel working at the site shall be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications. The HASP shall conduct daily health and safety meetings prior to work at the site.

In the event of an accident, the appropriate OTIE-TN&A personnel (specifically, the PM) shall immediately notify the primary client contact:

Leo Francendese – EPA OSC

(404) 562-8772 Work

If appropriate, within two working days of any reportable accident, the OTIE-TN&A SSHO and the PM shall complete and submit an Accident Report form.

Report all injuries or work related illnesses to the SSHO or supervisor as soon as possible.

Personnel and equipment in the contaminated area shall be minimized, consistent with effective site operations.

All work will be conducted during daylight hours.

Subcontractor Safety and Health Plans

Health and safety is the responsibility of all personnel working at the site (including subcontractors), and OTIE-TN&A has the primary responsibility of implementing the HASP. OTIE-TN&A will review the subcontractor's HASP to see if there are any deficiencies or conflicts between the HASPs. Any deficiencies or conflicts should be resolved before starting the field activities. The SSHO has the authority to evaluate, correct, and take corrective actions where subcontract personnel do not follow the approved HASP.

11.0 SITE CONTROL MEASURES

General

A site description and site map, including the size and location of the project, are found in Figure 1.

This section details the setup of the site into the various work zones. To minimize the possibility of exposing unprotected personnel and the translocation of contaminants, several measures will be taken. These measures include:

- Setting up security or physical barriers to exclude unnecessary personnel from the general area
- Minimizing the number of personnel and equipment on site consistent with effective operations
- Using extreme caution when walking around retention ponds and on pond liners
- Maintaining a minimum distance of 20 feet from cliff faces
- Establishing work zones within the site
- Establishing control points to regulate access to work zones
- Conducting operations in a manner that reduces the exposure of personnel and equipment, and
- Minimizing the airborne dispersion of contaminants.

Work Zone Definitions

As long as the level of protection required is Level D or modified Level D, one work zone is sufficient. However, if conditions change and the level of protection is upgraded to Level C, an exclusion zone, contamination reduction zone, and support zone will be established. In the event this is required – an amendment to this HASP will be issued.

The Buddy System

It will be a standard operating procedure at this project site that the 'buddy system' be utilized.

12.0 PERSONAL HYGIENE AND DECONTAMINATION

General

At the end of a daily shift and whenever leaving the work area where contact with hazardous chemical has been a possibility or personnel have been working in established exclusion zone, all personnel will be required to remove protective equipment and discard disposable garments. All wash water will be containerized for proper handling and disposal. At the end of the shift, all personnel will clean themselves and change into clean clothes, if necessary, before leaving the site.

Donning Personal Protective Equipment

The following procedures will be followed for putting on PPE (when required):

All employees working in Level D, Modified Level D, or Level C will have PPE available as described in Section 6.

All employees will be trained in the use of any PPE necessary to perform their duties.

Personal Hygiene/Sanitation

A portable eyewash, consisting of portable saline solution bottles, will be provided at the site.

In the event of a splash of acid solution in the eyes that cannot be alleviated via flushing with the portable saline bottle, a medical emergency exists. The injured worker will need to be transported to the local clinic for assistance.

Sanitary wipes and sanitizer hand wipe solution will be available for clean-up.

Water for hydration will be available.

All employees will follow the rules established below. Employees found to be disregarding the rules will be barred from the site.

13.0 EQUIPMENT DECONTAMINATION

Level of Protection

Personnel engaged in deconning will be in the same PPE level under which the work was performed.

Spill Prevention

If spills should occur, prompt cleanup with dedicated equipment from on-site spill response inventory will be used.

14.0 MEDICAL SERVICES

14.1 Site Medical Services

At least one employee certified in first aid and CPR by the American Red Cross (or equivalent) will be available each shift operations are conducted. The on-site first responder information is provided below:

Project Manager/SSHM
(Jorge Sanchez)

Cell: (678) 255-5538
Office: (678) 355-5550

14.2 Medical Providers

In the event of an on-site injury requiring emergency medical care or emergency response, the following medical center will be used:

OTIE-TN&A will be utilizing the Physician(s) and/or On-Call Staff at:

**Edgefield County Hospital
300 Ridge Medical Plaza Road
Edgefield, South Carolina 29824
(803) 637-3174**

Appendix H provides directions and a map to Edgefield County Hospital.

14.3 Lost-Time Injuries/Illnesses

An occupational physician will evaluate any employee who loses time due to a workplace injury or illness during the period of the contract. The physician will complete appropriate forms and provide the SSHO with a copy and clear the employee for return to work as appropriate. Reports of all such accidents will be maintained at the site.

15.0 EMERGENCY EQUIPMENT AND FIRST AID

The following emergency first-aid equipment will be available at the site and accessible to all personnel:

- An industrial first aid box with biohazard kit.
- Emergency eye wash solution will be available in sufficient quantity to ensure the capability of at least 15 minutes of flushing
- One 2A-10 B: C type, dry chemical fire extinguisher.

The above units will be set up each day in close proximity to work activities. These will be discussed in the initial site orientation.

At least two persons certified in first aid/CPR will be on-site at all times during construction activities. The SSHO and SSHM will also be certified in first aid/CPR. The SSHO will provide on-site personnel with first-aid procedures including heat stress, cold stress, shock, accident prevention, heart attack, and stroke.

16.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

**Table 3
Emergency Telephone Numbers**

Program Manager (Greg Kowalski)	Cell: (678) 255-5524 Office: (678) 355-5550
Project Manager/SSHM (Jorge Sanchez)	Cell: (678) 255-5538 Office: (678) 355-5550
Corporate Safety and Health Manager (William Fink, CIH, CSP, CHMM)	Cell: (414) 234-7845 Office: (414) 607-6779

The local emergency contacts are:

- City of McCormick – Emergency 911
- Hospital: Edgefield County Hospital (803) 637-3174
- National Response Center Oil/Chemical Spills (800) 424-8802
- Poison Information Center (800) 815-8855
- Chemtrec (800) 424-9300

**Table 4
Incident Reporting Call List**

If you have an incident which involves:

- Spill
- Release
- Fire
- Explosion
- Personal injury (more than first aid)
- Highway accident
- Non-OTIE-TN&A personnel
- Coverage or publicity
- Possible insurance company action
- Damage to OTIE-TN&A property
- Regulatory agency notice of violation

IMMEDIATELY CONTACT one of the following personnel starting at the top of the list:

Name	Work Tel. No.	Home Tel. No.	Pager/Mobile No.
1. Jorge Sanchez	(678) 355-5550	(678) 921-5015	(678) 255-5538
2. Greg Kowalski	(678) 355-5550	(770) 852-2627	(678) 255-5524
3. William Fink	(414) 607-6779	(414) 476-8379	(414) 234-7845

If the incident is reportable to outside regulatory agencies, notify the individuals listed in items #1 or #3 in the table above.

Primary client contact:

Leo Francendese – EPA OSC

(404) 562-8772 Work

17.0 LOGS, REPORTS, AND RECORDKEEPING

All subcontractors shall maintain logs and reports sufficient to document the implementation and execution of the personnel protection program and other relevant areas of this HASP. This documentation shall consist of medical surveillance files, training files, daily logs, and accident reports. These field forms should be filled out on a regular basis.

18.0 HAZARD COMMUNICATION

To comply with 29 CFR 1910.1200, Hazard Communication, the following excerpt from the OTIE-TN&A written Hazard Communication Program as incorporated into this HASP. All employees will be briefed on this program and have a written copy for review.

18.1 Container Labeling

All containers received on the site will be inspected to ensure the following: (1) all containers will be clearly labeled as to its contents; (2) the appropriate hazard warnings will be noted; and (3) the name and address of the manufacturer will be listed.

All secondary containers will be labeled with either an extra copy of the original manufacturer's label or with generic labels that have a block for identification and blocks for the hazard warning.

18.2 Material Safety Data Sheets

Copies of MSDS for all hazardous chemicals known or suspected on the site and for all chemicals brought onto the site such as decontamination chemicals, gasoline and other fuels, equipment calibration gases, etc. will be maintained in the work area. MSDS will be available to all employees for review during each work shift. In addition to MSDS, the Hazardous Material Inventory Form will be used to inventory hazardous materials to be introduced to the site, with estimated quantities, will be made available to all employees.

18.3 Employee Training and Information

Prior to starting work, each employee will attend a health and safety orientation and will receive information and training on the following:

- An overview of the requirements contained in the Hazard Communication Standard, 29 CFR 1910.1200
- Chemicals present in their workplace operations
- Location and availability of a written hazard program
- Physical and health effects of the hazardous chemicals
- Methods and observation techniques used to determine the presence or release of hazardous chemicals
- How to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment
- Emergency procedures to follow if they are exposed to these chemicals
- How to read labels and review MSDS to obtain appropriate hazard information
- Location of MSDS file and hazardous chemical list.

19.0 ALCOHOL AND DRUG ABUSE PLAN

Drug and Alcohol Use

It is OTIE-TN&A's desire to provide a drug-free, healthful, and safe workplace. To promote this goal, employees are expected to report to work in appropriate mental and physical condition to perform their jobs in a satisfactory manner.

While on OTIE-TN&A premises and while conducting business-related activities off OTIE-TN&A premises, no employee may use, possess, distribute, sell, or be under the influence of alcohol or illegal drugs. The legal use of prescribed drugs is permitted on the job only if it does not impair an employee's ability to perform the essential functions of the job effectively and in a safe manner that does not endanger themselves or other individuals in the workplace. When indications of use or impairment are present, employees may be requested to undergo blood, breath, urine or other drug or alcohol testing. Failure to agree to undergo testing may result in termination of employment.

Employees with questions or concerns about substance dependency or abuse are encouraged to discuss these matters with the Human Resources Department to receive assistance or referrals to appropriate resources in the community.

As a federal contractor, OTIE-TN&A is required to abide by the Drug-Free Workplace Act of 1988. The Act requires OTIE-TN&A to prepare and distribute an anti-drug policy statement prohibiting any drug-related activity in the workplace. Certain OTIE-TN&A federal contracts may require pre, post, and interim alcohol and drug testing. Employees will be required to comply with the testing program while employed on these projects or be subject to disciplinary action.

The Act mandates that employees must, as a condition of employment, abide by the terms of this policy and report any conviction under a criminal drug statute for violations occurring on or off company premises while conducting company business. The report is to be made within five (5) days of the conviction to a member of OTIE-TN&A's management.

Pursuant to the Drug-Free Workplace Act of 1988, the employer must notify the contracting federal agency of any such conviction within ten (10) days of being notified by the employee.

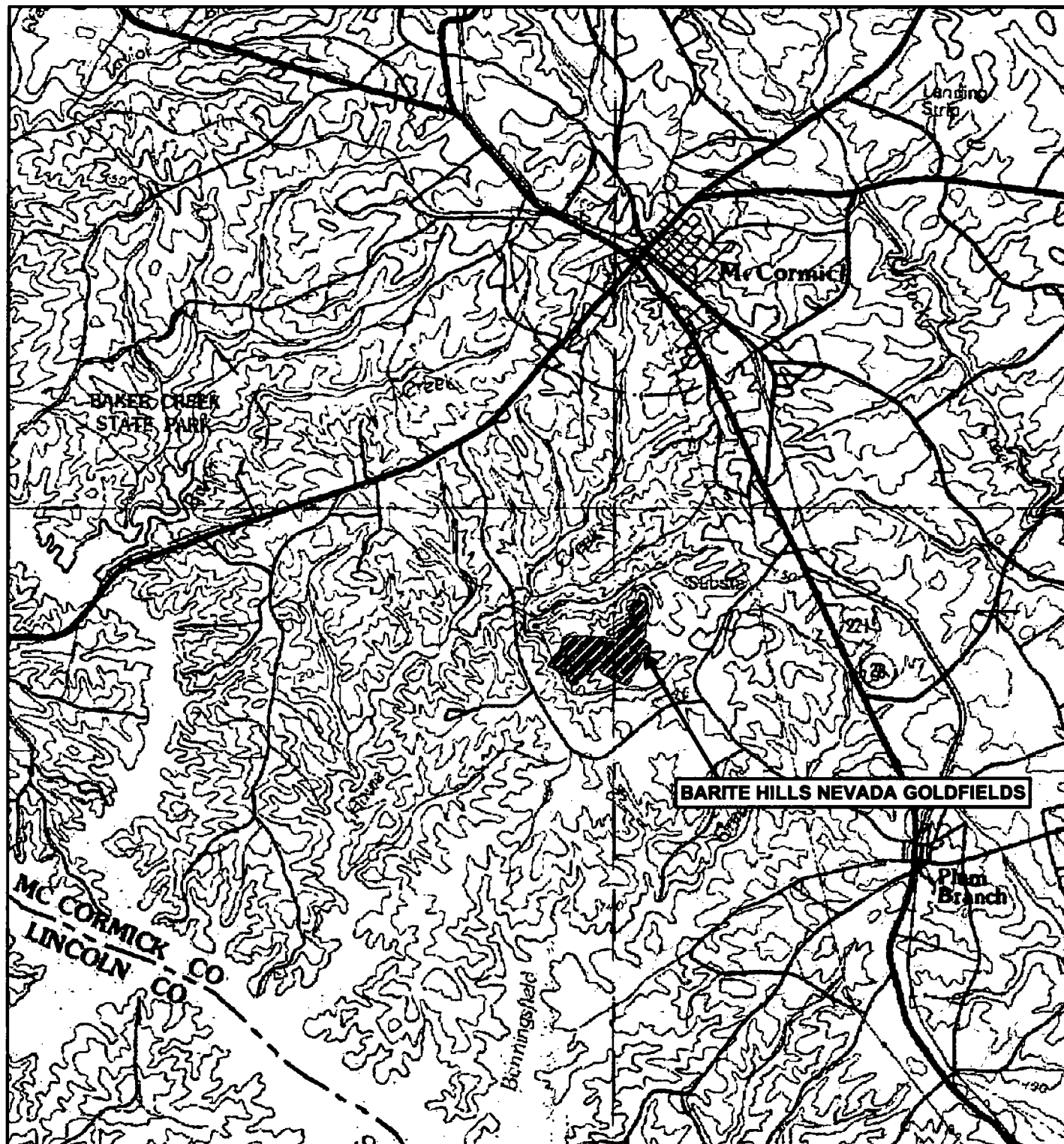
Violations of this policy may lead to disciplinary action, up to and including immediate termination of employment, and/or required participation in a substance abuse rehabilitation or treatment program. Such violations may also have legal consequences.

Employees with questions on this policy or issues related to drug or alcohol use in the workplace should raise their concerns with the Human Resources Department without fear of reprisal.

20.0 REFERENCES

- ACGIH (American Conference of Governmental Industrial Hygienists). 2008. Threshold Limit Values and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio.
- American Industrial Hygiene Association (AIHA). 1999. Safety Now, Controlling Chemical Exposures at Hazardous Waste Sites with Real-Time Measurements, Christopher Marlowe, CIH.
- Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Pocket Guide to Chemical Hazards and Other Databases, DHHS (NIOSH) Publication No. 2002-145, August 2001.
- EPA Region 4 Science and Ecosystem Support Division (SESD) *Field Branches Quality System and Technical Procedures* (FBQSTP); Section 12 - Safety, Facilities, and Security
- Hazardous Waste Site Operations and Emergency Response Standard (OSHA 29 CFR 1910.120 and 1926.65).
- OSHA (Occupational Safety and Health Administration). 29 Code of Federal Regulations (CFR) 1926 Construction Safety Regulations.
- U.S. Army Corps of Engineers, Safety & Health Requirements Manual (EM 385-1-1, 15 Sept 2008)

FIGURES



SOURCE: MODIFIED FROM USGS 7.5 MINUTE QUADRANGLES:
MCCORMICK SC (1988) & PLUM BRANCH SC (1988)

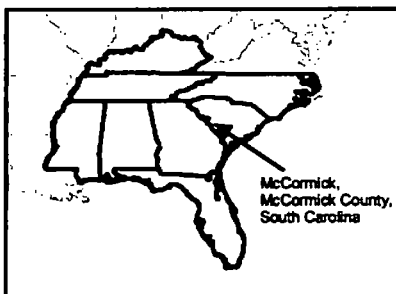
Disclaimer: This map is intended for visual orientation purposes.
It is not to be used for precise location data.

Legend

 Site Location



0 0.5 1 2 Miles



United States Environmental Protection Agency

BARITE HILLS NEVADA GOLDFIELDS
MCCORMICK, MCCORMICK COUNTY,
SOUTH CAROLINA
TDD No. TNA-05-001-0042

FIGURE 1
TOPOGRAPHICAL MAP



APPENDIX A

Site Health and Safety Plan Compliance Agreement



**SITE HEALTH AND SAFETY PLAN
COMPLIANCE AGREEMENT
Page 1 of 3**

OTIE-TN&A OFFICE LOCATION: Atlanta

**PROJECT NAME: BARITE HILL NEVADA GOLDFIELDS
CERCLIS ID: SCD98759703**

The contract for the above project requires the following: that you be provided with and complete formal site-specific training; that you be supplied with proper personal protective equipment including respirators; that you be trained in its use; that you receive a medical examination to evaluate your physical capability to perform your assigned work tasks under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you.

I have read the plan, understand it and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project for violating any of the safety requirements specified in the plan.

Name

Date

FORMAL TRAINING: I have completed the following formal training courses that meet OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements, as defined in 29 CFR 1910.120(e), "Training".

Date Complete

Initial 40-hour training:

3-day field supervised training:

8-hour supervisory training:

Annual 8-hour refresher training:

SITE-SPECIFIC TRAINING: I have been provided and have completed the site-specific training required by this Contract. The Site Safety and Health Officer conducted the training

Date

RESPIRATORY PROTECTION: I have been trained in accordance with the criteria in the contractor's/my employer's Respiratory Protection Program. I have been trained in the proper work procedures and use limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair policy.

Date



**SITE SAFETY AND HEALTH PLAN
COMPLIANCE AGREEMENT
Page 2 of 3**

RESPIRATOR FIT-TEST TRAINING: I have been trained in the proper selection, fit, care, cleaning, and maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in the contractor's/my employer's Respiratory Protection program and have received a satisfactory fit. I have been assigned my individual respirator. I have been taught how to properly perform positive and negative pressure fit check upon donning negative pressure respirator each time.

Date _____

MEDICAL EXAMINATION: I have had a medical examination within the last twelve (12) months, which was paid for by my employer. The examination included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray. A physician made determination regarding my physical capacity to perform work tasks on the project while wearing protective equipment including a respirator. I was personally provided a copy of the results of that examination. My employer's industrial hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

	Were no limitations to performing the required work tasks
	Were identified physical limitations to performing the required work tasks
	Date medical examination completed

CERTIFICATION

Employee's / Visitor's Signature	
Date	
Printed Name	

VERIFICATION

OTIE-TN&A SSHO Signature	
Date	
Printed Name	



**SITE SAFETY AND HEALTH PLAN
COMPLIANCE AGREEMENT
Page 3 of 3**

MEDICATIONS: I have physician's prescription to take the following medications. I understand that this information is voluntary. The SSHO will provide this information to emergency medical responders in the event of an emergency. Any medications with warnings of dizziness as a side effect should be indicated and communicated to the SSHO.

Medication 1 (dose):
Medication 2 (dose):
Medication 3 (dose):

ALLERGIES: (e.g. bee stings, latex, etc.) I have the following listed known allergies. I understand that this information is voluntary. The SSHO will provide this information to emergency medical responders in the event of an emergency.

1.
2.
3.

Emergency Contact Information:

Name:
Telephone:
Relationship:

APPENDIX B

Activity Hazard Analyses

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

Date: _____ Project: _____

Activity: Site Mobilization (AHA 01)

Activity Location: BARITE HILL NEVADA GOLDFIELDS; McCORMICK, McCORMICK
COUNTY, SOUTH CAROLINA; CERCLIS ID: SCD98759703 

Prepared By: William S. Fink, CIH, CSP, CHMM

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Probability					
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Add Identified Hazards				
	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Arrival to site	Being unfamiliar with site	The SSHO will give a tailgate meeting for all personnel prior to entering the site. This will include review of AHAs, PPE, emergency procedures and communication protocols.	L
X	Driving to site	Adverse Traffic or Weather Conditions	Obey traffic signs and signals. Jumping stoplights and signs is a major cause of accidents. Stop at red lights and stop signs. A yellow light does not mean go. Always slow down and look both ways before you go, even if the light is green or you are allowed to turn right on red. Pay attention to other traffic signs, including notices to yield, or construction or road hazards ahead. Do not tailgate. Stay at least two seconds behind the vehicle in front of you. When the car in front of you passes something stationary like a telephone pole, count "one thousand one, one thousand two." If you get to the pole before "one thousand two," you are following too closely. Pass on the left only. That's true on a highway as well as other roads. Before you pass, check that nothing is coming from the other direction or behind you. Then signal, pass, and signal again as you move back to your regular lane. Do not overload a vehicle. Overloading can make tires overheat and blow out. An overloaded vehicle can block the driver's rear and side vision. In addition, if you put too many people in a vehicle, there will not be enough safety belts to go around.	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Setting up Work Zones and Unloading Equipment	<p>Hazards of working on the contaminated and abandoned mine site include:</p> <ul style="list-style-type: none"> - Chemical (Toxic Dust, including metals and cyanide) - Fall (Slip, Trip); - Struck Against; - Mechanical; - Weather <p>Strains due to offloading of equipment and materials</p>	<p>Inspect work areas for slip, trip, and fall hazards and wear Level D PPE. Hazards shall be marked, barricaded, or eliminated, if feasible. Use care in work area; watch for uneven ground and obstacles, and remove obstacles if appropriate</p> <p>Employees shall only be allowed to work on walking/working surfaces that have the strength and integrity to support employees safely.</p> <p>Wear the following PPE: ANSI Class II reflective safety vest; ANSI approved Safety glasses with side shields; ANSI approved hard hat; ANSI approved steel-toe safety boots; Long pants and long sleeved shirt;</p> <p>In the event of high levels of airborne dust created by ambient winds, wear an N95 disposable respirator.</p> <p>Personnel will be trained to use proper lifting techniques such as keeping the back straight, lifting with legs, limiting twisting, and getting help when moving bulky/heavy materials and equipment. Use of hand truck shall be encouraged.</p> <p>Personnel will not lift more than 50 pounds without assistance. Hand tools shall be selected to minimize the following stressors: chronic muscle contraction or steady force, extreme or awkward finger/hand/arm positions, repetitive forceful motions, excessive gripping, pinching, and/or pressing with hand and finger.</p>	M
X	Conducting Site Recon On Site	<p>Heat Stress from working outdoors</p> <p>Contact with biological hazards</p> <ul style="list-style-type: none"> - Poison Ivy, poison oak, poison sumac - Ticks and Lyme disease - West Nile Virus and West Nile Encephalitis 	<p>Perform heat stress monitoring if temperature is >80 deg. F (refer to SSHP for more details). Drink plenty of fluids. Use sunscreen. Wear long sleeves.</p> <p>Inspect work areas of poison ivy, poison oak and poison sumac. Flag these areas as necessary and take protective measures, such as barrier creams, full body protective disposable coveralls, double-layer disposable nitrile gloves, and boot covers if necessary to enter these areas. Decon carefully to prevent getting oils on skin and clothing.</p> <p>To prevent tick and mosquito exposure, reduce the area of exposed skin. Use an approved insect repellent. At the end of the work shift, wash treated skin thoroughly with soap and water.</p>	L

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Conducting Site Recon On Site	Inclement weather can cause injury to personnel and property damage	<p>During daily safety meetings, address inclement weather procedures</p> <ul style="list-style-type: none"> • Electrical storms or Tornado: Monitor local weather through available media or weather radio • Lightning and/or Thunder: Equipment shutdown Proceed to sheltered support zone Await further instruction from PM or SSO • Tornado Warning: Equipment shutdown Proceed to sheltered support zone Await further instruction from PM or SSO <p>Note: A 30-minute stand down period is required after encountering lightning or thunder in order to allow the storm to pass. Verification from the National Weather Service (NWS) for an ALL CLEAR is also advised prior to re-commencing work following a Tornado Warning.</p>	L
X	Use of hand and power tools (for various mobilization activities)	<p>Hand injury may occur from improper use of hand tools</p> <p>Electrical hazard with power tools</p>	<p>Ensure all personnel using hand tools are trained in their appropriate use</p> <p>Avoid repetitive tasks for long periods of time</p> <p>Use proper PPE, in this case, leather gloves All power tools must be properly grounded.</p> <p>Personnel using the power tool must be trained in the use of the tool and the tool must be in good condition.</p> <p>All safety guards shall be in place</p>	L

Add Items

	EQUIPMENT	TRAINING	INSPECTION
X	Hand and power tools	Personnel training for use of power tools and hand tools	Check that all hand tools and power tools are in good condition. If not they are to be tagged and not used for this work.

ACTIVITY HAZARDS ANALYSIS

	EQUIPMENT	TRAINING	INSPECTION
<p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p> <p>28</p> <p>29</p> <p>30</p> <p>31</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p> <p>36</p> <p>37</p> <p>38</p> <p>39</p> <p>40</p> <p>41</p> <p>42</p> <p>43</p> <p>44</p> <p>45</p> <p>46</p> <p>47</p> <p>48</p> <p>49</p> <p>50</p> <p>51</p> <p>52</p> <p>53</p> <p>54</p> <p>55</p> <p>56</p> <p>57</p> <p>58</p> <p>59</p> <p>60</p> <p>61</p> <p>62</p> <p>63</p> <p>64</p> <p>65</p> <p>66</p> <p>67</p> <p>68</p> <p>69</p> <p>70</p> <p>71</p> <p>72</p> <p>73</p> <p>74</p> <p>75</p> <p>76</p> <p>77</p> <p>78</p> <p>79</p> <p>80</p> <p>81</p> <p>82</p> <p>83</p> <p>84</p> <p>85</p> <p>86</p> <p>87</p> <p>88</p> <p>89</p> <p>90</p> <p>91</p> <p>92</p> <p>93</p> <p>94</p> <p>95</p> <p>96</p> <p>97</p> <p>98</p> <p>99</p> <p>100</p>	<p>PPE</p> <p>For all mobilization tasks wear:</p> <p>steel toed boots</p> <p>safety glasses</p> <p>long pants /coveralls</p> <p>hard hat</p> <p>high visibility vest</p> <p>leather gloves - If handling materials or using tools or potential contact with biological hazard.</p> <p>hearing protection if using power tools</p>	<p>Personnel to be trained in the proper use of all PPE</p>	<p>Inspection of PPE to make sure it is in good condition prior to donning</p>

Involved Personnel:

Jorge Sanchez, SSHO

Russell Henderson, PM/SSHM

Acceptance Authority (digital signature):

William S. Fink

Digitally signed by William S. Fink
 DN: cn=William S. Fink, o=TN & Associates, Inc., ou=Corp EHS,
 email=w.fink@tninc.com, c=US
 Date: 2009.04.23 13:44:32 -05'00'

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

Date: _____ Project: _____

Activity: Pit Lake and Seep Sampling (AHA 02)

Activity Location: BARITE HILL NEVADA GOLDFIELDS; McCORMICK, McCORMICK
COUNTY, SOUTH CAROLINA; CERCLIS ID: SCD98759703

Prepared By: William S. Fink, CIH, CSP, CHMM

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards					
	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS		RAC
X	Off-Loading John Boat and Launching into Pit Lake	Drowning High pH exposure (2-3) due to acid mine drainage in lake	All personnel on the water must have a life vest. USCG-approved Type II near shore life vests will be worn in, near and on the water. USCG-approved Type IV throwable devices are required in the boat and on shore with employees. These cushions and ring buoys are designed to be thrown to someone in trouble. Use Gauntlet Style Nitrile Gloves (22 mil) when working near shore and handling any water soaked items.		M

ACTIVITY HAZARDS ANALYSIS

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Conducting Sampling of Seeps in Adjacent Areas	<p>Heat Stress from working outdoors</p> <p>Contact with biological hazards</p> <ul style="list-style-type: none"> - Poison Ivy, poison oak, poison sumac - Ticks and Lyme disease - West Nile Virus and West Nile Encephalitis 	<p>Perform heat stress monitoring if temperature is >80 deg. F (refer to SSHP for more details).</p> <p>Drink plenty of fluids</p> <p>Use sunscreen.</p> <p>Wear long sleeves.</p> <p>Inspect work areas of poison ivy, poison oak and poison sumac. Flag these areas as necessary and take protective measures, such as barrier creams, full body protective disposable coveralls, double-layer disposable nitrile gloves, and boot covers if necessary to enter these areas. Decon carefully to prevent getting oils on skin and clothing.</p> <p>To prevent tick and mosquito exposure, reduce the area of exposed skin. Use an approved insect repellent. At the end of the work shift, wash treated skin thoroughly with soap and water.</p> <p>All samples will be collected manually.</p> <p>Use the following PPE to protect from high pH lake water:</p> <p>Safety glasses with side shields with a full face shield to prevent splashing onto face and exposed skin.</p> <p>Gauntlet style gloves - Nitrile (22 mil)</p> <p>Rubber Over-boots</p> <p>In the event of splashing and exposure to exposed skin - follow the first aid procedures on the Chemical Data Sheet for "Sulfuric Acid" found in Appendix F.</p> <p>Decon all equipment as necessary.</p>	M

ACTIVITY HAZARDS ANALYSIS

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
Conducting Sampling Activities on Pit Lake and Adjacent Seeps	Inclement weather can cause injury to personnel and property damage	<p>During daily safety meetings, address inclement weather procedures</p> <ul style="list-style-type: none"> • Electrical storms or Tornado: Monitor local weather through available media or weather radio • Lightning and/or Thunder: Pit Lake Sampling: Immediately Proceed to Shore in the John Boat and Proceed to the Sheltered Support Zone Seep Sampling: Proceed to Sheltered Support Zone Await further instruction from PM or SSHO • Tornado Warning: Pit Lake Sampling: Immediately Proceed to Shore in the John Boat and Proceed to the Sheltered Support Zone Seep Sampling: Proceed to Sheltered Support Zone Await further instruction from PM or SSHO <p>Note: A 30-minute stand down period is required after encountering lightning or thunder in order to allow the storm to pass. Verification from the National Weather Service (NWS) for an ALL CLEAR is also advised prior to re-commencing work following a Tornado Warning.</p>	H

ACTIVITY HAZARDS ANALYSIS

	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Conducting Sampling Activities on Pit Lake	<p>Operating a Boat on Open Water:</p> <p>Drowning</p> <p>Overloading the Boat</p> <p>Capsizing the Boat</p> <p>Chemical Exposure (high pH of lake water due to acid mine drainage)</p>	<p>All personnel on the water must have a life vest. USCG-approved Type II near shore life vests will be worn in, near and on the water. USCG-approved Type IV throwable devices are required in the boat and on shore with employees. These cushions and ring buoys are designed to be thrown to someone in trouble.</p> <p>The boat will be checked for weight capacity to determine the total capacity to be used prior to going on the boat. The boat has a capacity and prior to entering the boat, the weight and approval of the weight must be maintained.</p> <p>At least one person on the boat shall have USCG boat safety training prior to operating the boat. Proof of training to be provided to the Project Manager prior to mobilization.</p> <p>All samples will be collected manually.</p> <p>Use the following PPE to protect from high pH lake water:</p> <p>Safety glasses with side shields with a full face shield to prevent splashing onto face and exposed skin.</p> <p>Gauntlet style gloves - Nitrile (22 mil)</p> <p>Rubber Over-boots</p> <p>In the event of splashing and exposure to exposed skin - follow the first aid procedures on the Chemical Data Sheet for "Sulfuric Acid" found in Appendix F.</p>	H
X	Landing the John Boat and Off Loading Personnel and Equipment	<p>Slip, Trip and Falls</p> <p>Chemical Exposure (high pH of lake water due to acid mine drainage)</p>	<p>Take care when exiting the John Boat and off-loading equipment as there is not a dock. Pull the boat up on shore as far as possible to prevent personnel from standing in the contaminated water.</p> <p>Use Gauntlet Style Nitrile Gloves (22 mil) when working near shore and handling any water soaked items.</p> <p>In the event of splashing and exposure to exposed skin - follow the first aid procedures on the Chemical Data Sheet for "Sulfuric Acid" found in Appendix F.</p> <p>Decon all equipment as necessary.</p>	

ACTIVITY HAZARDS ANALYSIS

EQUIPMENT		TRAINING	INSPECTION
Add Items			
EQUIPMENT		TRAINING	INSPECTION
X	Hand and power tools	Personnel training for use of power tools and hand tools	Check that all hand tools and power tools are in good condition. If not they are to be tagged and not used for this work.
X	PPE For all Sampling Activities wear: ANSI Class II reflective safety vest steel toed boots safety glasses with side shields and a face shield long pants /coveralls hard hat hearing protection - when using power tools leather gloves - If handling materials or using tools Nitrile gloves - when sampling acid mine drainage (high pH water)	Personnel to be trained in the proper use of all PPE	Inspection of PPE to make sure it is in good condition prior to donning

Involved Personnel:

Jorge Sanchez, SSHO

Russell Henderson, PM/SSHM

Acceptance Authority (digital signature):

William S. Fink

Digitally signed by William S. Fink
 DN: cn=William S. Fink, o=TIN & Associates, Inc., ou=Corp EHS,
 email=w.fink@tininc.com, c=US
 Date: 2009.04.23 14:32:00 -05'00'

ACTIVITY HAZARDS ANALYSIS

Overall Risk Assessment Code (RAC)
(Use highest code)

Date: _____ Project: _____

Activity: Site Demobilization (AHA 03)

Activity Location: BARITE HILL NEVADA GOLDFIELDS; McCORMICK, McCORMICK COUNTY, SOUTH CAROLINA; CERCLIS ID: SCD98759703 ☒

Prepared By: William S. Fink, CIH, CSP, CHMM

Risk Assessment Code Matrix

E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L

Add Identified Hazards				
	JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE OR MINIMIZE HAZARDS	RAC
X	Clean Up and Securing of Site	Crushing, cutting, electrical hazards during use of hand and power tools Slip, trip, fall Biological and plant hazards	Tools must be in good condition Hand tools shall be selected to minimize the following stressors: chronic muscle contraction or steady force, extreme or awkward finger/hand/arm positions, repetitive forceful motions, excessive gripping, pinching, and/or pressing with hand and finger All power tools must be properly grounded. Personnel using the power tool must be trained in the use of the tool and the tool. All safety guards shall be in place Watch for uneven ground and obstacles, and remove obstacles if appropriate Wear appropriate PPE; including sturdy boots Be aware of snakes and spiders during the clean up activities and do not reach into 'blind spots' Wearing steel toed boots and leather gloves will help with minimizing contact with plants and animals and protect against cuts, pinches, or abrasions.	L

ACTIVITY HAZARDS ANALYSIS

Add Items			
	EQUIPMENT	TRAINING	INSPECTION
X	Hand and power tools	Personnel training for use of power tools and hand tools	Check that all hand tools and power tools are in good condition. If not they are to be tagged and not used for this work.
X	PPE For all tasks wear: steel toed boots safety glasses long pants /coveralls hard hat high visibility vest and hearing protection - when equipment is in operation leather gloves - if handling materials or using tools, or if potential contact to biological hazards.	Personnel to be trained in the proper use of all PPE	Inspection of PPE to make sure it is in good condition prior to donning

Involved Personnel:

Jorge Sanchez, SSHO

Russell Henderson, PM/SSHM

Acceptance Authority (digital signature):

William S. Fink

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 email=w.fink@tninc.com, c=US
 Date: 2009.04.23 14:45:30 -05'00'

APPENDIX C

OSHA 300 Logs/EHS Performance Record